



STATE OF DELAWARE
EXECUTIVE DEPARTMENT
OFFICE OF MANAGEMENT AND BUDGET
STATE PLANNING COORDINATION

February 15, 2007

Randy DuPlechain
Davis, Bowen & Friedel, Inc.
23 N. Walnut Street
Milford, DE 19963

RE: PLUS review – PLUS 2007-01-01; Wood Property

Dear Mr. DuPlechain:

Thank you for meeting with State agency planners on January 24, 2007 to discuss the proposed plans for the Wood property project to be located on the west side of Route 13, approximately 1 mile south of Felton.

According to the information received, you are seeking site plan approval for 239 residential units on 131 acres located partially in Level 3 and partially in Level 4 according to the *Strategies for State Policies and Spending*.

Please note that changes to the plan, other than those suggested in this letter, could result in additional comments from the State. Additionally, these comments reflect only issues that are the responsibility of the agencies represented at the meeting. The developers will also need to comply with any Federal, State and local regulations regarding this property. We also note that as Kent County is the governing authority over this land, the developers will need to comply with any and all regulations/restrictions set forth by the County.

Executive Summary

The following section includes some site specific highlights from the agency comments found in this letter. This summary is provided for your convenience and reference. The full text of this letter represents the official state response to this project. *Our office*

notes that the applicants are responsible for reading and responding to this letter and all comments contained within it in their entirety.

State Strategies/Project Location

- This project is currently located in Investment Levels 3 and 4 according to the 2004 *Strategies for State Policies and Spending*. However, this project is also located in the Town of Felton's recently adopted/certified (January, 2007) comprehensive plan. In certifying this plan the state acknowledges that growth is anticipated in this area and that with the next update to the State Spending Strategies this area will reflect that. Our office has no objections to the proposed development of this area due to its consideration in the Felton's certified comprehensive plan, but we advise that development of the land be sensitive to considerations as noted in the suggestions and recommendations in this letter

Street Design and Transportation

- The plan presented includes a 60-foot right-of-way reserved apparently for north-south collector streets through the development. Reservation, as opposed to dedication and construction, is not acceptable. The developer must provide an acceptable means of guaranteeing that a street will be in place before the development is complete. The burden of creating it cannot be left with the public or a homeowners association.

Natural and Cultural Resources

- The Watershed Assessment Section strongly recommends the applicant consider preserving the existing natural riparian buffer adjacent to the Murderkill River in its entirety.
- It is further recommended that a 100-foot buffer (planted in native woody and/or herbaceous vegetation) be established from headwater ditch draining to Spring Branch in the northeastern corner of the parcel.
- It is recommended that lots 118-122 (and any others within 100ft of the wetlands) be relocated or omitted from the site plan. The applicant indicated at the meeting that there was a 25ft set-back from the lot line, but this should not be considered part of the buffer width because there is nothing to prevent homeowners from clearing their lot all the way to the lot line

- The Drainage Section requests a minimum 25-foot tree and shrub planting on the agricultural ditch buffers with the tallest trees planted on the south and west side of the ditch to maximize shading. Trees should not be planted within 5 feet of the top of the branch to avoid future blockages from roots. The buffers as well as the branch banks should be planted with herbaceous vegetation to aid in the reduction of sediment and nutrients entering into Spring Branch.

The following are a complete list of comments received by State agencies:

Office of State Planning Coordination – Contact: David Edgell 739-3090

This project is currently located in Investment Levels 3 and 4 according to the 2004 *Strategies for State Policies and Spending*. However, this project is also located in the Town of Felton's recently adopted/certified (January, 2007) comprehensive plan. In certifying this plan the state acknowledges that growth is anticipated in this area and that with the next update to the State Spending Strategies this area will reflect that. Our office has no objections to the proposed development of this area due to its consideration in the Felton's certified comprehensive plan, but we advise that development of the land be sensitive to considerations as noted in the suggestions and recommendations in this letter

Division of Historical and Cultural Affairs – Contact: Alice Guerrant 739-5685

This parcel is partially in Level 3 and partially in Level 4. The Division of Historical and Cultural Affairs (DHCA) is not in favor of developing this parcel, because it will lead to the further destruction of the historic agricultural landscape in this vicinity and to the loss of archaeological sites. This parcel contains the site of Burberry's Bury (K-182), which may date to the late 17th-century to early 18th-century, which may be the same as the Dr. Saulsbury House shown on Beers Atlas of 1868. There are areas of high potential for a prehistoric-period archaeological site as well. There are a number of historic houses in the area.

Small, rural, family cemeteries often are found in relation to historic farm complexes, such as the Dr. Saulsbury House, usually a good distance behind or to the side of the house. The developer should be aware of Delaware's Unmarked Human Remains Act of 1987, which governs the discovery and disposition of such remains. The unexpected discovery of unmarked human remains during construction can result in significant delays while the process is carried out, and the developer may want to hire an archaeological consultant to check for the possibility of a cemetery here if this development is approved. The DHCA would have to have a copy of any archaeological

report done for this purpose. They will be happy to discuss these issues with the developer.

The DHCA would like the opportunity to examine the area prior to any ground-disturbing activities, to see if there are in fact any archaeological sites on the parcel and to learn something about their location, nature, and extent. They request that there be sufficient landscaping around this development to block any noise or visual intrusions on the nearby historic houses.

Department of Transportation – Contact: Bill Brockenbrough 760-2109

- 1) A traffic impact study has been done for the subject development. This study has been reviewed by DeIDOT's consultant, McCormick Taylor, and they sent a copy of the comments and recommendations to Kent County on September 18, 2006. A copy of that letter is enclosed.
- 2) One of the most important recommendations in McCormick Taylor's letter, concerns the need for north-south collector streets through the development and reads as follows:

The site should be designed on the assumption that its primary access in the future would be from the north and south. Accordingly, the design should include one or more major collector streets (36-foot wide streets in 60-foot wide rights-of-way with driveway access prohibited) running from north to south through the property and stubbing to the adjoining parcels. To buffer the proposed development from the Norfolk Southern railroad line, we suggest that one of these streets be placed along the west edge of the developable area.

The plan presented includes a 60-foot right-of-way reserved apparently for that purpose. Reservation, as opposed to dedication and construction, is not acceptable. The developer must provide an acceptable means of guaranteeing that a street will be in place before the development is complete. The burden of creating it cannot be left with the public or a homeowners association.

DeIDOT is also concerned by the proposed location of the right-of-way just mentioned. Most of the site frontage on Route 13 has been developed as a strip of lots. The proposed road, when available, would provide rear access to those lots so their highway access could at some point be eliminated. Therefore the proposed location has some merit. However, because the proposed right-of-way

would be so close to Route 13, it would be difficult to tie it into Reeves Crossing Road without severely affecting the Schabinger property (Tax Parcel SM-00-148.00-01-10.00-000) immediately to the south. DeIDOT recommends that the proposed right-of-way be supplemented or replaced by one closer to the west edge of the developable land.

Finally in this regard, if the proposed right-of-way reservation is to remain in substantially the same location where it is now shown, we recommend that a preliminary design of the service road be done prior to record plan approval to ensure that sufficient right-of-way is provided. Our concern here is with the section between the site's entrance drive and the DeLong property (Tax Parcel SM-00-138.00-02-59.00). The proposed reservation appears to assume a service road with a reverse curve that would not meet our design criteria. Again, to reiterate a point, reserving this right-of-way rather than dedicating it, is not acceptable.

- 3) The developer's site engineer should contact the project manager for Kent County, Mr. Brad Herb, regarding specific requirements for streets and access. Two particular aspects of the plan that should be reviewed with Mr. Herb are the temporary cul-de-sacs proposed on the stub streets and the knuckle curves proposed for the northeast and southeast corners of the development. Mr. Herb may be reached at (302) 266-9600.

**The Department of Natural Resources and Environmental Control – Contact:
Kevin Coyle 739-9071**

Soils

Based on the Kent County soil survey update Downer, Hammonton, Glassboro, Fallsington, and Longmarsh/Indiantown were mapped on subject parcel. Downer is a well-drained upland soil that, generally, has few limitations for development. Hammonton is a moderately well-drained soil of low-lying uplands and has moderate limitations for development. Glassboro is a somewhat poorly-drained soil (potentially hydric) soil conducive for support of wetland or near wetland conditions. Fallsington is a poorly-drained wetland associated (hydric) soil that has severe limitations for development. Longmarsh/Indiantown is very poorly-drained wetland associated (hydric) soils that have severe limitations for development. **Approximately 30-40% of the soils on this parcel are hydric or near hydric.**

Wetlands/Wetland Buffers

According to the Statewide Wetland Mapping Project (SWMP) mapping, palustrine riparian wetlands associated with headwater reaches of the Murderkill River were mapped along the southwestern corner of subject parcel. Additionally, potential unmapped riparian wetlands associated with the heavily ditched headwater reaches of the Spring Branch bisect the northeastern corner of subject parcel.

The applicant must avoid construction/filling activities in those areas containing wetlands or wetland associated hydric soils as they are subject to regulatory jurisdiction under Federal 404 provisions of the Clean Water Act. It is strongly recommended that a field wetlands delineation, approved by the United State Army Corps of Engineers (USACE), be performed on this parcel before commencing any construction activities. In circumstances where the applicant or applicant's consultant delineates what they believe are nonjurisdictional isolated (SWANCC) wetlands - the USACE must be contacted to evaluate and assess the jurisdictional validity of such a delineation.

As noted previously, this parcel contains SWMP mapped near headwater riparian wetlands associated with the Murderkill River and the Spring Branch. Headwater or near headwater riparian wetlands are important for the protection of water quality and the maintenance/integrity of the ecological functions throughout the length of the stream, including the floodplain system and/or waterbodies further downstream. Since such streams are a major avenue for nutrient-laden stormwater and sediment runoff, their protection deserves the highest priority. In recognition of this concern, the Watershed Assessment Section strongly recommends the applicant consider preserving the existing natural riparian buffer adjacent to the Murderkill River in its entirety.

Based on a review of existing buffer research by Castelle et al. (1994), an adequately-sized buffer that effectively protects wetlands and streams - in most circumstances - is about 100-foot in width. In recognition of this research and the need to protect water quality, the Watershed Assessment Section recommends that the applicant maintain/establish a minimum 100-foot upland buffer (planted in native vegetation) from the landward edge of all wetlands and waterbodies (including all ditches). As mentioned previously, the applicant is strongly encouraged to preserve all of the existing forested cover adjacent to the riparian wetlands associated with the Murderkill River in its entirety. Otherwise, an upland buffer width of at least 100-foot is the recommended minimum. It is further recommended that a 100-foot buffer (planted in native woody and/or herbaceous vegetation) be established from headwater ditch draining to Spring Branch in the northeastern corner of the parcel

As mentioned previously, a significant portion of the land area of subject parcel (est. 30-40%) contains wetland associated hydric or near hydric soils. Hydric soils typically have a seasonal high water table at or near the soil surface (within one-foot of soil surface or less). Building in such soils is likely to leave prospective residents of this and adjoining properties susceptible to future flooding problems from groundwater-driven surfacewater ponding – especially during extended periods of high-intensity rainfall events such as tropical storms/hurricanes or “nor’easters.” This is in addition to increased flooding probabilities from surfacewater runoff emanating from future created forms of structural imperviousness (roof tops, roads, and sidewalks). It is strongly recommended that the applicant avoid these soils.

There are several lots that appear to be too close to existing wetlands. These wetlands form the buffer to the Murderkill River and maintaining at least a 100ft upland buffer is extremely important for water quality and as habitat and wildlife travel corridors. There are also wetland dependent species which utilize these buffer zones for a portion of their life cycles.

It is recommended that lots 118-122 (and any others within 100ft of the wetlands) be relocated or omitted from the site plan. The applicant indicated at the meeting that there was a 25ft set-back from the lot line, but this should not be considered part of the buffer width because there is nothing to prevent homeowners from clearing their lot all the way to the lot line. Landowners could easily clear this 25ft setback area for sheds, play areas, swimming pools, dog kennels etc. and that is why there needs to be a 100ft buffer between the wetlands and the lot lines.

There are many developments either proposed or in progress along the Murderkill River (and its tributaries) and cumulative impacts are a major concern for this river system. In addition, the drainage will eventually enter Killens and Coursey Ponds, both publicly-owned, State managed ponds. Staff time and funding is used to maintain the water quality within these ponds, which already have a history of water quality problems caused by excessive nutrients. A private development should not be permitted to contribute run-off and exacerbate the problem when it could easily be prevented by maintaining 100ft in width wetland and riparian buffers.

DNREC requests that tree clearing not occur April 1st to July 1st to reduce impacts to nesting birds and other wildlife species that utilize forests for breeding. This clearing recommendation would only protect those species during the breeding season; because once trees are cleared the result is an overall loss of habitat.

Wetlands and Subaqueous Lands

The Watershed Assessment Section considers development in level 4 Investment Areas or areas outside of designated growth zones, a threat to Delaware's environmental quality. Of particular concern is how this uncontrolled growth is likely to increase nutrient runoff and hamper the State's ability to meet the nutrient reductions prescribed under the federally mandated Total Maximum Daily Load (TMDL) load program. Given Section's concerns and objections for building in Level 4 areas, the following comments should not be construed as tacit approval for this project but rather demonstrate what the Section believes are minimally acceptable regulatory guidelines and/or recommendations to mitigate some of the expected environmental impacts.

Forest Cover Removal

According to information presented in the Plus application, the applicant intends to remove about 1.7 of the existing 22.2 acres (approx. 8% removal) of this parcel's forested acreage to accommodate subject development. Since deforestation and its impacts are cumulative at the watershed scale, efforts to protect the few remaining contiguously forested remnants is essential for maintaining the watershed's environmental integrity. Although the remaining forested acreage on this parcel is a relatively small portion of the parcel's overall land area, its strategic location as part of a larger contiguously forested natural buffer adjacent to sensitive waters and wetlands of the Murderkill River gives it significance in disproportion to its size. Therefore, the applicant is strongly urged to consider its preservation.

Impervious Surfaces and BMPs

Based on a review of the PLUS application, post-development surface imperviousness is estimated to be about 30 percent. However, given the scope and density of this project, this estimate is likely to be an **underestimate**. The applicant's apparent use of natural areas (wetlands or buffers) and areas of functional utility (stormwater management areas) for meeting the County's open space requirements artificially lowers the amount of this project's post-development projection of surface imperviousness – ultimately underestimating its environmental impacts. Open space was originally intended to provide residents with convenient access to lands amenable to active recreation, not a “catchall” land type for meeting the county's open space requirements to maximize “buildable” acreage. Furthermore, the applicant should also realize that all created forms of constructed surface imperviousness (i.e., rooftops, sidewalks, and roads) and their extent should be comprehensively accounted for when calculating surface imperviousness. It is strongly recommended that the applicant address all of the above-mentioned concerns in the finalized calculation for surface imperviousness.

Studies have shown a strong relationship between increases in impervious cover to decreases in a watershed's overall water quality. It is strongly recommended that the applicant implement best management practices (BMPs) that reduce or mitigate some of its most likely adverse impacts. Reducing the amount of surface imperviousness through the use of pervious paving materials ("pervious pavers") in lieu of asphalt or concrete in conjunction with an increase in forest cover preservation or additional tree plantings – are some examples of practical BMPs that could easily be implemented to help reduce surface imperviousness.

Drainage

The Drainage Program is aware of existing drainage concerns associated with Spring Branch, shown on the plans as an agricultural ditch, downstream of this property. The Drainage Program requests the engineer take precautions to ensure the project does not hinder any off site drainage upstream of the project or create any off site drainage problems downstream by the release of on site storm water. The Drainage Program requests the engineer check existing downstream ditches and pipes for function and blockages prior to the construction. Notify downstream landowners of the change in volume of water released on them.

The Drainage Section requests a minimum 25-foot tree and shrub planting on the agricultural ditch buffers with the tallest trees planted on the south and west side of the ditch to maximize shading. Trees and shrubs should be native species, spaced to allow for mechanized drainage maintenance at maturity. Tree and shrub planting in this manner will provide a shading effect promoting water quality while allowing future drainage maintenance. Trees should not be planted within 5 feet of the top of the branch to avoid future blockages from roots. The buffers as well as the branch banks should be planted with herbaceous vegetation to aid in the reduction of sediment and nutrients entering into Spring Branch. Grasses, forbs and sedges planted within this buffer should be native species, selected for their height, ease of maintenance, erosion control, and nutrient uptake capabilities.

The Drainage Program encourages the elevation of rear yards to direct water towards the streets where storm drains are accessible for maintenance. However, the Drainage Program recognizes the need for catch basins in yards in certain cases. Therefore, catch basins placed in rear and side yards will need to be clear of obstructions and be accessible for maintenance. Decks, sheds, fences, pools, and kennels can hinder drainage patterns as well as future maintenance to the stormdrain or catch basin. Deed restrictions, along with drainage easements recorded on deeds, should ensure adequate future maintenance access.

The Drainage Program does not have a clear understanding how stormwater will convey to the stormwater management areas. The Drainage Program requests the routing of major stormwater pipes through yards be prohibited.

Recommendations:

- Increase the sideyard setback to 15 feet on all properties with a drainage easement on the side. The increase will allow room for equipment to utilize the entire easement and maneuver free of obstructions if the drainage conveyance requires periodic maintenance or future re-construction. The side yard setback would only increase on the side with the drainage easement.
- All catch basins in rear or side yards should have a 10-foot drainage easement around them on all sides. Place restrictions on fences, sheds, and other structures within the easement to prevent obstructions from being placed next to the catch basin. Record the easement on the deed.
- Have all drainage easements recorded on deeds and place restrictions on obstructions within the easements to ensure access for periodic maintenance or future re-construction. Future property owners may not be aware of a drainage easement on their property if the easement is only on the record plan. However, by recording the drainage easement on the deed, the second owner, and any subsequent owner of the property, will be fully aware of the drainage easement on their property.
- This project is within the Murderkill River Watershed, a designated critical area, with a promulgated Total Maximum Daily Load (TMDL). The developer should preserve existing riparian buffers to aid in the reduction of nutrients, sediment, and other pollutants. For the further enhancement of water quality in the Murderkill watershed, the Drainage Program encourages additional widths of vegetated buffers and other water quality measures on this project. Stormwater from site will drain into Killens Pond and Coursey Pond, of which both have existing water quality problems. Please explore methods to filter excess nutrients in stormwater runoff from this site before releasing stormwater into the Murderkill River watershed.

Sediment and Stormwater

1. Land disturbing activities in excess of 5,000 square feet are regulated under the Delaware Sediment and Stormwater Regulations. A detailed sediment and stormwater management plan must be reviewed and approved by the Kent

Conservation District prior to any land disturbing activity (i.e. clearing, grubbing, filling, grading, etc.) taking place. The review fee and a completed Application for a Detailed Plan are due at the time of plan submittal to the Kent Conservation District. Construction inspection fees based on developed area and stormwater facility maintenance inspection fees based on the number of stormwater facilities are due prior to the start of construction. Please refer to the fee schedule for those amounts.

2. The following notes must appear on the record plan:
 - The Kent Conservation District reserves the right to enter private property for purposes of periodic site inspection.
 - The Kent Conservation District reserves the right to add, modify, or delete any erosion or sediment control measure, as it deems necessary.
 - A clear statement of defined maintenance responsibility for stormwater management facilities must be provided on the Record Plan.
3. Ease of maintenance must be considered as a site design component and a maintenance set aside area for disposal of sediments removed from the basins during the course of regular maintenance must be shown on the Record Plan for the subdivision.
4. All drainage ways and stormdrain should be contained within drainage easements and clearly shown on the plan to be recorded by Kent County.
5. A soils investigation supporting the stormwater management facility design is required to determine impacts of the seasonal high groundwater level and soils for any basin design.

Comments:

1. Sections of the site may be eligible for a quantity waiver given the close proximity to the Murderkill River, quality requirements must still be met.
2. There are known drainage issues upstream from the site (Spring Branch)
3. The designer is encouraged to consider the conservation design approach and limit the amount of tree clearing required for the development of the site including the stormwater management facilities shown in the wooded areas.

4. Access to the proposed stormwater facility must be provided for periodic maintenance. This access should be at least 12 feet wide to leading to the facility and around the facility's perimeter.
5. It is recommended that the stormwater management areas be incorporated into the overall landscape plan to enhance water quality and to make the stormwater facility an attractive community amenity.
6. A letter of no objection to re-recording will be provided once the detailed Sediment and Stormwater Management plan has been re-approved.
7. Proper drainage of developed lots and active open space should be considered in the development of the grading plan for this subdivision.
8. Based on the site characteristics, a pre-application meeting is suggested to discuss stormwater management and drainage for this site.

Water

The project information sheets state water will be provided to the project by The Town of Felton via a public water system. DNREC records indicate that the project is located within the public water service area granted to The Town of Felton under Certificate of Public Convenience and Necessity 03-CPCN-21.

Should dewatering points be needed during any phase of construction, a dewatering well construction permit must be obtained from the Water Supply Section prior to construction of the well points. In addition, a water allocation permit will be needed if the pumping rate will exceed 50,000 gallons per day at any time during operation.

All well permit applications must be prepared and signed by licensed water well contractors, and only licensed well drillers may construct the wells. Please factor in the necessary time for processing the well permit applications into the construction schedule. Dewatering well permit applications typically take approximately four weeks to process, which allows the necessary time for technical review and advertising.

Should you have any questions concerning these comments, please contact me, Rick Rios, at 302-739-9944.

Rare Species

The Department has never surveyed this site, therefore, it is unknown if there are state-rare or federally listed plants, animals or natural communities at or adjacent to this project site.

Nuisance Geese

The applicant indicated that nuisance geese would be considered in the planning of this project and landscaping would be used as a deterrent. DNREC recommends native plantings of tall grasses, wildflowers, shrubs, and trees at the edge and within a buffer area (50ft) around the perimeter. Waterfowl do not feel safe when they can not see the surrounding area for possible predators. These plantings should be completed as soon as possible as it is easier to deter geese when there are only a few than it is to remove them once they become plentiful. The Division of Fish and Wildlife does not provide goose control services, and if problems arise, residents or the home-owners association will have to accept the burden of dealing with these species (e.g., permit applications, costs, securing services of certified wildlife professionals). Solutions can be costly and labor intensive; however, with a reduction in the number and/or size of the ponds, proper landscaping, monitoring, and other techniques, geese problems can be minimized.

TMDL reduction requirements

Total Maximum Daily Loads (TMDLs) for nitrogen and phosphorus have been promulgated through regulation for the Murderkill watershed. A TMDL is the maximum level of pollution allowed for a given pollutant below which a “water quality limited waterbody” can assimilate and still meet water quality standards to the extent necessary to support use goals such as, swimming, fishing, drinking water and shell fish harvesting. Although TMDLs are required by federal law, states are charged with developing and implementing standards to support these desired use goals. In the Murderkill watershed, a post-development TMDL reduction level of 30 and 50 percent will be required for nitrogen and phosphorus, respectively. Additionally a TMDL reduction level of 32 percent reduction will be required for bacteria.

TMDL compliance through the PCS

As stated above Total Maximum Daily loads (TMDLs) for nitrogen and phosphorus have been promulgated through regulation for the Murderkill Watershed. The TMDL calls for a 30% reduction for nitrogen and 50% for phosphorus from baseline conditions. The TMDL also calls for a 32 percent reduction in bacteria from baseline conditions. The Department developed an assessment tool to evaluate how your proposed development

may reduce nutrients and bacteria to meet the TMDL requirements. Additional reductions may be possible through the implementation of Best Management Practices such as wider vegetated buffers along watercourses, increasing passive, wooded open space, and the use of stormwater management treatment trains. Contact Lyle Jones at 302-739-9939 for more information on the assessment tool.

Water Resource Protection Areas

The DNREC Water Supply Section has reviewed the above referenced PLUS project and determined that it falls mostly within an excellent ground-water recharge area for the Kent County (see attached map). The site plan shows storm water management ponds in the area of excellent recharge.

Excellent Ground-Water Recharge Areas are those areas mapped by the Delaware Geological Survey where the first 20 feet of subsurface soils and geologic materials are exceptionally sandy. These soils are able to transmit water very quickly from the land surface to the water table. This map category (excellent) is an indicator of how fast contaminants will move and how much water may become contaminated (Andres, 2004). Land use activities or impervious cover on areas of excellent ground-water recharge potential may adversely affect the quality and quantity of ground water in these areas.

The construction phase of storm water management ponds requires excavation, hauling, and grading. The heavy equipment used in this phase has the capacity to compact and degrade the structure of the strata that defines the area as an excellent ground water recharge area. Changes to the structural soil properties may cause significant reduction in recharge capacity. Installing storm-water management ponds in excellent ground-water recharge areas has the potential to contaminate the ground water beneath it and infiltrate into the aquifer.

The DNREC Water Supply Section recommends that the portion of the new development within the excellent ground-water recharge area not exceed 20% impervious cover (DNREC, 2005). The purpose of an impervious cover threshold is to minimize loss of recharge (and associated increases in storm water) and protect the quality and quantity of ground water and surface water supplies.

The proposed development would change the impervious over from 0 % to approximately 30 %. Developer on the PLUS application provided these numbers. Some allowance for augmenting ground-water recharge should be considered if the impervious cover exceeds 20% but is less than 50% of that portion of the parcel within these areas, provided the applicant submits an environmental assessment recommending a climatic water budget and facilities to augment recharge (Thornthwaite, 1957).

The environmental assessment must document that post-development recharge will be no less than predevelopment recharge when computed on an annual basis. Commonly, the applicant offsets the loss of recharge due to impervious cover by constructing recharge basins that convey relatively pure rooftop runoff for infiltration to ground water (Kauffman, 2005).

In addition, because the excellent ground water recharge area can so quickly affect the underlying aquifer if contaminants are spilled or discharged across the area, the storage of hazardous substances or wastes should not be allowed within the area unless specific approval is obtained from the relevant state, federal, or local program.

References

Andres, A. Scott, 2004, Ground-Water Recharge Potential Mapping in Kent and Sussex Counties, Delaware: Delaware Geological Survey Report of Investigations No. 66, p. 14.

<http://www.udel.edu/dgs/Publications/pubform.html#nvestigations>

Delaware Department of Natural Resources and Environmental Control (2005): *Source Water Protection Guidance Manual for the Local Governments of Delaware*: Dover, DE., 144 p.

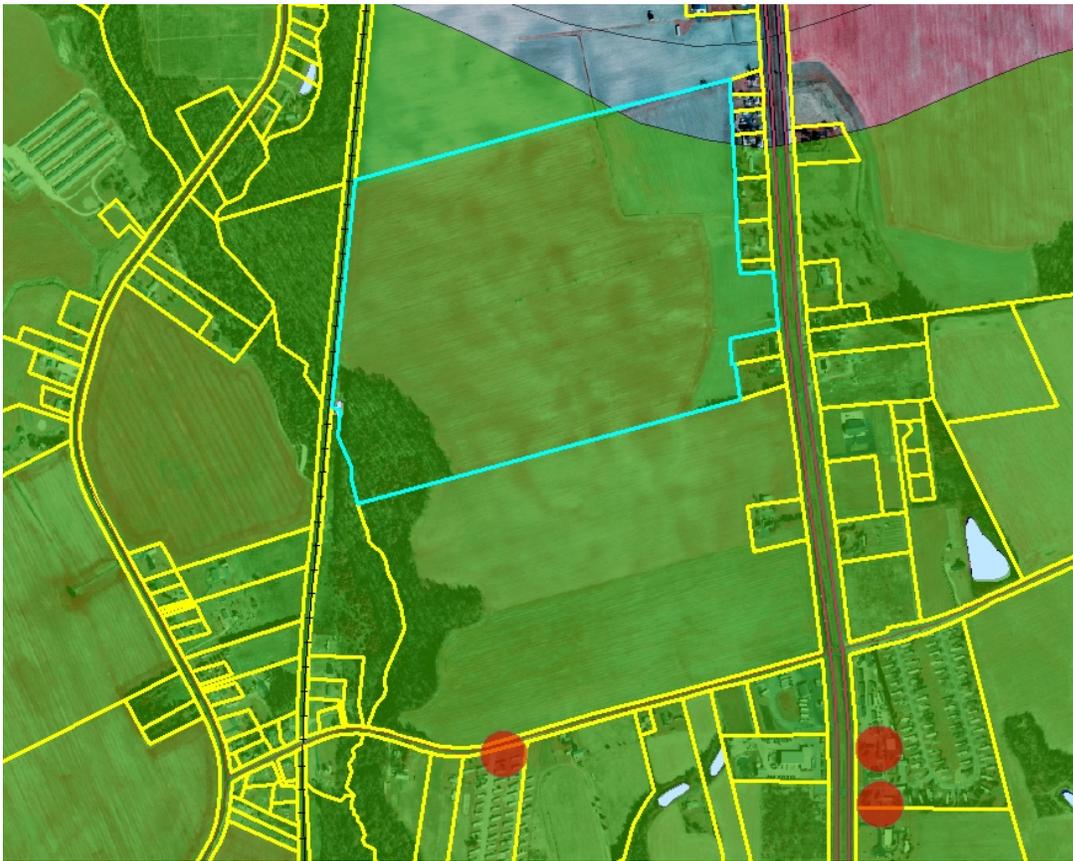
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Kauffman, G.J., Wozniak, S.L., and Vonck, K.J., 2005, *Delaware Ground-Water Recharge Design Manual*: Newark, DE, Water Resources Agency, University of Delaware, p. 31.

<http://www.wr.udel.edu/swaphome/Publications/SWPguidancemanual.html>

Thornthwaite, C. W. , and Mather, J. R., 1957, Instructions and Tables for Computing Potential Evapotranspiration and the Water Balance, Volume x, Drexel Institute of Technology, Laboratory of Climatology.

Wood Property (PLUS 2007-01-01) Excellent ground-water recharge potential area is highlighted in green. The parcel under review is outlined in light blue.



Air Quality Management

Once complete, vehicle emissions associated with this project are estimated to be 18.3 tons (36,684.0 pounds) per year of VOC (volatile organic compounds), 15.2 tons (30,371.9 pounds) per year of NO_x (nitrogen oxides), 11.2 tons (22,408.9 pounds) per year of SO₂ (sulfur dioxide), 1.0 ton (1,994.8 pounds) per year of fine particulates and 1,534.3 tons (3,068,570.4 pounds) per year of CO₂ (carbon dioxide)

However if this project is in a level 4 area, mobile emission calculations should be increased by 118 pounds for VOC emissions for each mile outside the designated growth areas per household unit; by 154 pounds for NO_x; and by 2 pounds for particulate emissions. A typical development of 100 units that is planned 10 miles outside the growth areas will have additional 59 tons per year of VOC emissions, 77 tons per year of NO_x emissions and 1 ton per year of particulate emissions versus the same development built in a growth area (level 1,2 or 3).

Emissions from area sources* associated with this project are estimated to be 7.4 tons (14,796.3 pounds) per year of VOC (volatile organic compounds), 0.8 ton (1,628.0 pounds) per year of NOx (nitrogen oxides), 0.7 ton (1,351.0 pounds) per year of SO2 (sulfur dioxide), 0.9 ton (1,743.5 pounds) per year of fine particulates and 30.0 tons (59,981.0 pounds) per year of CO2 (carbon dioxide)

Emissions from electrical power generation associated with this project are estimated to be 2.9 tons (5,864.2 pounds) per year of NOx (nitrogen oxides), 10.2 tons (20,397.2 pounds) per year of SO2 (sulfur dioxide) and 1,504.3 tons (3,008,589.4 pounds) per year of CO2 (carbon dioxide).

A significant method to mitigate this impact would be to require the builder to construct Energy Star qualified homes. Every percentage of increased energy efficiency translates into a percent reduction in pollution. Quoting from their webpage:

<http://www.energystar.gov/>

“ENERGY STAR qualified homes are independently verified to be at least 30% more energy efficient than homes built to the 1993 national Model Energy Code or 15% more efficient than state energy code, whichever is more rigorous. These savings are based on heating, cooling, and hot water energy use and are typically achieved through a combination of:

building envelope upgrades,
high performance windows,
controlled air infiltration,
upgraded heating and air conditioning systems,
tight duct systems and
upgraded water-heating equipment.”

The Energy office in DNREC is in the process of training builders in making their structures more energy efficient. The Energy Star Program is excellent way to save on energy costs and reduce air pollution. They highly recommend this project development and other residential proposals increase the energy efficiency of their homes.

They also recommend that the home builders offer geothermal and photo voltaic energy options. Applicable vehicles should use retrofitted diesel engines during construction. The development should provide tie-ins to the nearest bike paths and links to mass transport system, fund a lawnmower exchange program for their new occupants

State Fire Marshal's Office – Contact: R.T. Leicht 739-4394

These comments are intended for informational use only and do not constitute any type of approval from the Delaware State Fire Marshal's Office. At the time of formal submittal, the applicant shall provide; completed application, fee, and three sets of plans depicting the following in accordance with the Delaware State Fire Prevention Regulation (DSFPR):

a. **Fire Protection Water Requirements:**

- Where a water distribution system is proposed for single-family dwellings it shall be capable of delivering at least 500 gpm for 1-hour duration, at 20-psi residual pressure. Fire hydrants with 1000 feet spacing on centers are required. (One & Two- Family Dwelling)
- Where a water distribution system is proposed for the site, the infrastructure for fire protection water shall be provided, including the size of water mains for fire hydrants and sprinkler systems.

b. **Accessibility**

- All premises, which the fire department may be called upon to protect in case of fire, and which are not readily accessible from public roads, shall be provided with suitable gates and access roads, and fire lanes so that all buildings on the premises are accessible to fire apparatus. This means that the access road to the subdivision from South duPont Hwy must be constructed so fire department apparatus may negotiate it.
- Fire department access shall be provided in such a manner so that fire apparatus will be able to locate within 100 ft. of the front door.
- Any dead end road more than 300 feet in length shall be provided with a turn-around or cul-de-sac arranged such that fire apparatus will be able to turn around by making not more than one backing maneuver. The minimum paved radius of the cul-de-sac shall be 38 feet. The dimensions of the cul-de-sac or turn-around shall be shown on the final plans. Also, please be advised that parking is prohibited in the cul-de-sac or turn around.
- The use of speed bumps or other methods of traffic speed reduction must be in accordance with Department of Transportation requirements.
- The local Fire Chief, prior to any submission to our Agency, shall approve in writing the use of gates that limit fire department access into and out of the development or property.

- c. **Gas Piping and System Information:**
 - Provide type of fuel proposed, and show locations of bulk containers on plan.

- d. **Required Notes:**
 - Provide a note on the final plans submitted for review to read “ All fire lanes, fire hydrants, and fire department connections shall be marked in accordance with the Delaware State Fire Prevention Regulations”
 - Proposed Use
 - Alpha or Numerical Labels for each building/unit for sites with multiple buildings/units
 - National Fire Protection Association (NFPA) Construction Type
 - Maximum Height of Buildings (including number of stories)
 - Note indicating if building(s) is/are to be sprinklered
 - Name of Water Provider
 - Letter from Water Provider approving the system layout
 - Provide Road Names, even for County Roads

Preliminary meetings with Fire Protection Specialists are encouraged prior to formal submittal. Please call for appointment. Applications and brochures can be downloaded from our website: www.delawarestatefiremarshal.com, technical services link, plan review, applications or brochures.

Department of Agriculture - Contact: Scott Blaier 698-4500

The Department does not object to the portion of the project located within Investment Level 3 under the *Strategies for State Policies and Spending*. However, the Department does not support the portion of the project located in Investment Level 4. The intent of this plan is to preserve the agricultural lands, forestlands, recreational uses, and open spaces that are preferred uses in Level 4 areas. The Department of Agriculture opposes development which conflicts with the preferred land uses, making it more difficult for agriculture and forestry to succeed, and increases the cost to the public for services and facilities.

More importantly, the Department of Agriculture opposes this project because it negatively impacts those land uses that are the backbone of Delaware's resource industries - agriculture, forestry, horticulture - and the related industries they support. Often new residents of developments like this one, with little understanding or appreciation for modern agriculture and forestry, find their own lifestyles in direct conflict with the demands of these industries. Often these conflicts result in compromised health and safety; one example being decreased highway safety with farm equipment and cars competing on rural roads. The crucial economic, environmental and open space benefits of agriculture and forestry are

compromised by such development. We oppose the creation of isolated development areas that are inefficient in terms of the full range of public facilities and services funded with public dollars. Public investments in areas such as this are best directed to agricultural and forestry preservation.

The proposed development is within 300 feet of a property permanently enrolled in the State's Agricultural Lands Preservation Program (Woikoski Farms District) (Parcel 8-00-14800-01-0401). Therefore, the farming activities conducted on this preserved property will be protected by the agricultural use protections outlined in Title 3, Del. C., Chapter 9. These protections effect adjoining developing properties. The 300 foot notification requirement affects **all new deeds** in a subdivision located in whole or part within 300 feet of an Agricultural District. Please take note of these restrictions as follows:

§ 910. Agricultural use protections.

(a) Normal agricultural uses and activities conducted in a lawful manner are preferred and priority uses and activities in Agricultural Preservation Districts. In order to establish and maintain a preference and priority for such normal agricultural uses and activities and avert and negate complaints arising from normal noise, dust, manure and other odors, the use of agricultural chemicals and nighttime farm operations, land use adjacent to Agricultural Preservation Districts shall be subject to the following restrictions:

(1) For any new subdivision development located in whole or in part within 300 feet of the boundary of an Agricultural Preservation District, the owner of the development shall provide in the deed restrictions and any leases or agreements of sale for any residential lot or dwelling unit the following notice:

This property is located in the vicinity of an established Agricultural Preservation District in which normal agricultural uses and activities have been afforded the highest priority use status. It can be anticipated that such agricultural uses and activities may now or in the future involve noise, dust, manure and other odors, the use of agricultural chemicals and nighttime farm operations. The use and enjoyment of this property is expressly conditioned on acceptance of any annoyance or inconvenience which may result from such normal agricultural uses and activities."

(2) For any new subdivision development located in whole or in part within 50 feet of the boundary of an Agricultural Preservation District, no improvement requiring an occupancy approval shall be constructed within 50 feet of the boundary of the Agricultural Preservation District.

(b) Normal agricultural uses and activities conducted in accordance with good husbandry and best management practices in Agricultural Preservation Districts shall be deemed protected actions and not subject to any claim or complaint of nuisance, including any such claims under any existing or future county or municipal code or ordinance. In the event a formal complaint alleging nuisance related to normal agricultural uses and activities is filed against an owner of lands located in an Agricultural Preservation District, such owner, upon prevailing in any such action, shall be entitled to recover reasonably incurred costs and expenses related to the defense of any such action, including reasonable attorney's fees (68 Del. Laws, c. 118, § 2.).

In addition, if any wells are to be installed, Section 4.01(A)(2) of the Delaware Regulations Governing the Construction and Use of Wells will apply. This regulation states:

(2) For any parcel, lot, or subdivision created or recorded within fifty (50) feet of, or within the boundaries of, an Agricultural Lands Preservation District (as defined in Title 3, Del. C., Chapter 9); all wells constructed on such parcels shall be located a minimum of fifty (50) feet from any boundary of the Agricultural Lands Preservation District. This requirement does not apply to parcels recorded prior to the implementation date of these Regulations. However, it is recommended that all wells be placed the maximum distance possible from lands which are or have been used for the production of crops which have been subjected to the application of land applied federally regulated chemicals.

This site is located almost entirely within an area designated as having “excellent” ground-water recharge potential. DNREC has mapped all ground-water recharge-potential recharge areas for the state, and an “excellent” rating designates an area as having important groundwater recharge qualities.

Senate Bill 119, enacted by the 141st General Assembly in June of 2001, requires the counties and municipalities with over 2,000 people to adopt as part of the update and implementation of their 2007 comprehensive land use plans, areas delineating excellent

ground-water recharge potential areas. Furthermore, the counties and municipalities are required to adopt regulations by December 31, 2007 governing land uses within those areas to preserve ground-water quality and quantity.

Maintaining pervious cover in excellent and good recharge areas is crucial for the overall environmental health of our state and extremely important to efforts which ensure a safe drinking water supply for future generations. Retention of pervious cover to ensure an adequate future water supply is also important for the future viability of agriculture in the First State. The loss of every acre of land designated as “excellent” and “good” recharge areas adversely impacts the future prospects for agriculture in Delaware. The developer should make every effort to protect and maintain valuable ground-water recharge potential areas.

The Delaware Department of Agriculture supports growth which expands and builds on existing urban areas and growth zones in approved State, county and local plans. Where additional land preservation can occur through the use of transfer of development rights, and other land use measures, we will support these efforts and work with developers to implement these measures. If this project is approved we will work with the developers to minimize impacts to the agricultural and forestry industries.

Right Tree for the Right Place

The Delaware Department of Agriculture Forest Service encourages the developer to use the “Right Tree for the Right Place” for any design considerations. This concept allows for the proper placement of trees to increase property values in upwards of 25% of appraised value and will reduce heating and cooling costs on average by 20 to 35 dollars per month. In addition, a landscape design that encompasses this approach will avoid future maintenance cost to the property owner and ensure a lasting forest resource.

Native Landscapes

The Delaware Department of Agriculture and the Delaware Forest Service encourages the developer to use native trees and shrubs to buffer the property from the adjacent land-use activities near this site. A properly designed forested buffer can create wildlife habitat corridors and improve air quality to the area by removing six to eight tons of carbon dioxide annually and will clean our rivers and creeks of storm-water run-off pollutants. To learn more about acceptable native trees and how to avoid plants considered invasive to our local landscapes, please contact the Delaware Department of Agriculture Plant Industry Section at (302) 698-4500.

Tree Mitigation

The Delaware Forest Service encourages the developer to implement a tree mitigation program to replace trees at a 1:1 ratio within the site and throughout the community. This will help to meet the community's forestry goals and objectives and reduce the environmental impacts to the surrounding natural resources. To learn more, please contact our offices at (302) 349-5754.

Public Service Commission - Contact: Andrea Maucher 739-4247

Any expansion of natural gas or installation of a closed propane system must fall within Pipeline Safety guidelines. Contact: Malak Michael at (302) 739-4247.

Department of Education – Contact: John Marinucci 739-4658

DOE recognizes that a portion of this development project is in level 4 of the State Strategies for Policies and Spending. DOE does not support the approval of projects in level 4 of the State Strategies for Policies and Spending.

This proposed development is within the Lake Forest School District boundaries. DOE offers the following comments on behalf of the Lake Forest School District.

1. Using the DOE standard formula, this development will generate an estimated 120 students.
2. DOE records indicate that the Lake Forest School Districts' *elementary schools are at or beyond 100% of current capacity* based on September 30, 2006 elementary enrollment.
3. DOE records indicate that the Lake Forest School Districts' *secondary schools are very close to 100% of current capacity* based on September 30, 2006 secondary enrollment.
4. The Superintendent of Lake Forest School District has communicated to the DOE the district's lack of capacity given the number of planned and recorded residential sub divisions within district boundaries.
5. This development will create additional elementary and secondary student population growth which will further compound the existing shortage of space.
6. The developer is strongly encouraged to contact the Lake Forest School District Administration to address the issue of school over-crowding that this development will exacerbate.
7. DOE requests developer work with the Lake Forest School District transportation department to establish developer supplied bus stop shelter ROW and shelter structures, interspersed throughout the development as determined and recommended by the local school district.

Following receipt of this letter and upon filing of an application with the local jurisdiction, the applicant shall provide to the local jurisdiction and the Office of State Planning Coordination a written response to comments received as a result of the pre-application process, noting whether comments were incorporated into the project design or not and the reason therefore.

Thank you for the opportunity to review this project. If you have any questions, please contact me at 302-739-3090.

Sincerely,

A handwritten signature in cursive script that reads "Constance C. Holland".

Constance C. Holland, AICP
Director

CC: Kent County
Town of Felton